

B1 39. (New) A transistor with an interconnect via, defined by a surface substantially free of voids, comprising:

- an interconnect of silicon oxide or borophosphosilicate glass that defines a semiconductor structure that defines an interconnect via comprising an active region of a transistor;
- a titanium nitride film on the semiconductor structure;
- a second titanium nitride film having a polycrystalline orientation that overlays the titanium nitride film; and
- an interconnect overlaying the second titanium nitride film, the interconnect comprising aluminum.

40. (New) The transistor of claim 39 wherein the via has a high aspect ratio.

41. (New) The transistor of claim 40 wherein the aspect ratio is greater than about 5:1.

42. (New) The transistor of claim 40 wherein the aspect ratio is about 8:1.

43. (New) The transistor of claim 40 wherein the thickness of the second titanium nitride film is about 100 to 200 angstroms for a 0.25 micron interconnect via.

44. (New) The transistor of claim 40 wherein the thickness of the aluminum interconnect is about 2000 to 3000 angstroms.

45. (New) An integrated circuit with an interconnect structure, the integrated circuit comprising:

- a first layer of titanium nitride;
- an aluminum film;
- a second layer of titanium nitride between the first layer of titanium nitride and the aluminum film, wherein the film has a small grain size.

46. (New) The integrated circuit of claim 45 wherein the first and second layers of titanium nitride each have a thickness of about 100 to 200 angstroms.

47. (New) The integrated circuit of claim 45, wherein the first layer of titanium nitride is amorphous.

48. (New) The integrated circuit of claim 45, wherein the second layer of titanium nitride is polycrystalline.

49. (New) The integrated circuit of claim 45, wherein the second layer of titanium nitride has a mixed crystalline orientation, such that a crystal orientation of an aluminum grain is selected from the group consisting of: $\langle 111 \rangle$ and $\langle 200 \rangle$.

50. (New) The integrated circuit of claim 45 wherein the aluminum film has a thickness of about 2000 to 3000 angstroms.

51. (New) The integrated circuit of claim 45 wherein the aluminum film has a polycrystalline grain structure.

52. (New) The integrated circuit of claim 45, wherein the aluminum film has a grain size of less than about 0.25 microns.
